PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY13/14 CYCLE

Palo Alto Signal Timing Project

City of Palo Alto I City of Menlo Park I City of East Palo Alto I City of Mountain View I City of Los Altos I County of Santa Clara I Caltrans I Metropolitan Transportation Commission

PROJECT OVERVIEW

The City of Palo Alto received a grant from Metropolitan Transportation Commission's Program for Arterial System Synchronization (PASS) to deploy optimized signal timing plans for a total of 65 traffic signals along the Hamilton Avenue, University Avenue, Lytton Avenue, Alma Street, Middlefield Road, Embarcadero Road, San Antonio Road, and Charleston Road corridors. Fifty-three of the project traffic signals are owned, operated, and maintained by the City of Palo Alto. The City of Los Altos, Caltrans, and the City of Mountain View own, operate, and maintain four, three, and two traffic signals, respectively; one traffic signal is owned, operated, and maintained by each of the Cities of East Palo Alto, Menlo Park and the County of Santa Clara. As part of the project, all intersections were identified for retiming during the weekday AM, midday, and PM periods. The weekend AM and PM peak periods timing plans were developed for the 34 project intersections.

The goal of this project was to improve traffic progression along the study corridor between signals and help to address operational deficiencies.

The PASS project involved the completion of the following tasks: data collection, review of traffic data (including collision data), development of recommended adjustments to actuated timings, development of coordination plans for the weekday and weekend peak periods, implementation and fine-tuning of the recommended timings, "before" and "after" travel time surveys, and project documentation.

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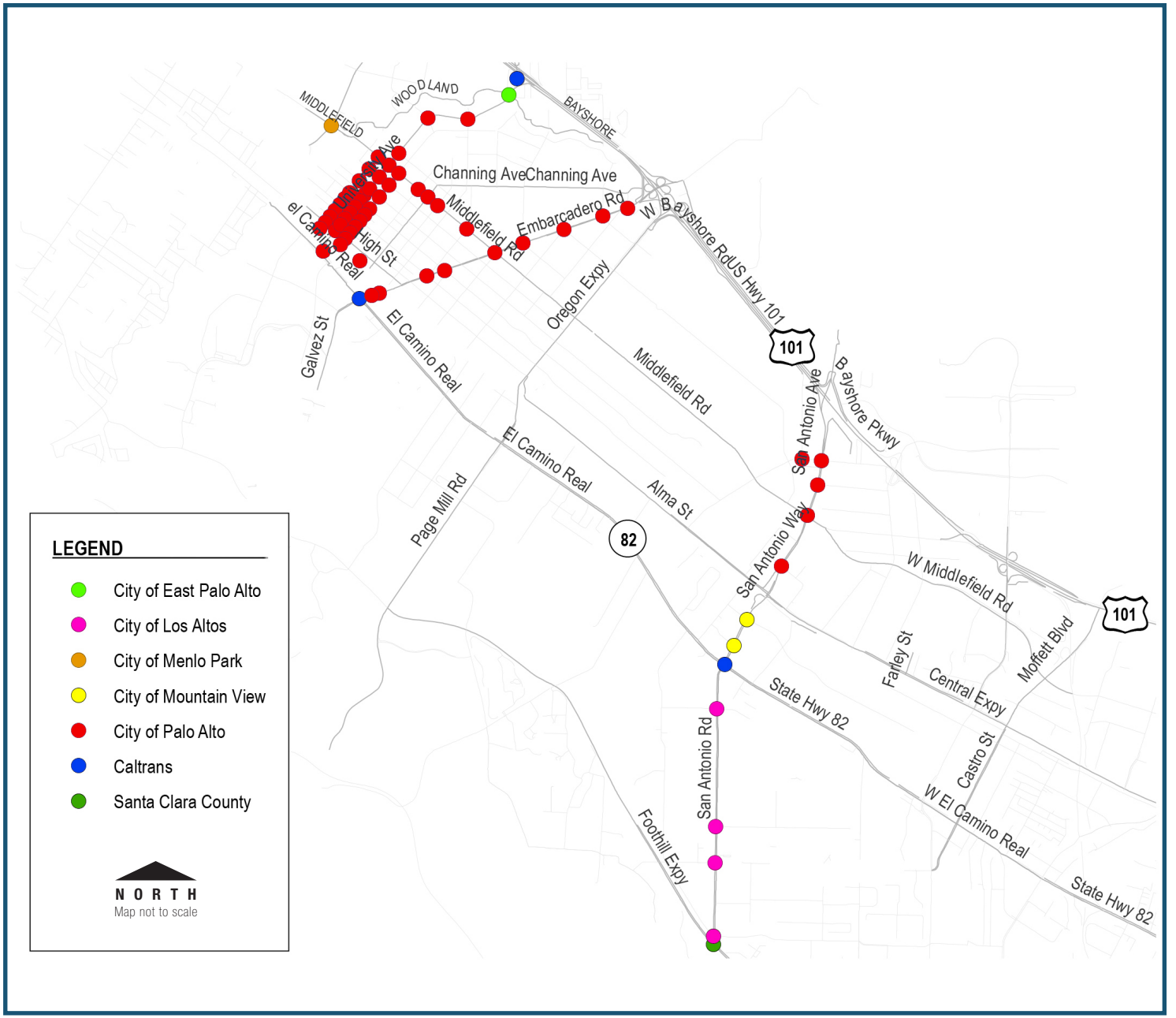


Project Overview (continued)

The new timing plans were implemented except the Palo Alto downtown area signals. Due to ongoing construction in the downtown area and the uncertainty in the construction completion date, new timing plans were not implemented. The new timing plans for the downtown area were developed and submitted to the City of Palo Alto for later implementation by city staff, upon completion of the construction work. Fine-tuning was conducted immediately following the implementation of the new timings to ensure the most effective timings were deployed into the system. Offset revisions were made to enable enhanced progression.

Benefits to Various Modes

Benefits to Bicyclists: Bicycle minimum green time was reviewed to meet the California MUTCD 2012 guidelines for minimum bicycle clearance. The minimum green time was adjusted at 10 project intersections.

Benefits to Pedestrians: The new pedestrian timing parameters were adjusted to accommodate the new walking speed of 3.5 feet/second as per the 2012 California MUTCD. Pedestrian timing parameters were reviewed for each project intersection to ensure adequate crossing time for pedestrians. These timing parameters were adjusted and implemented at 36 intersections.

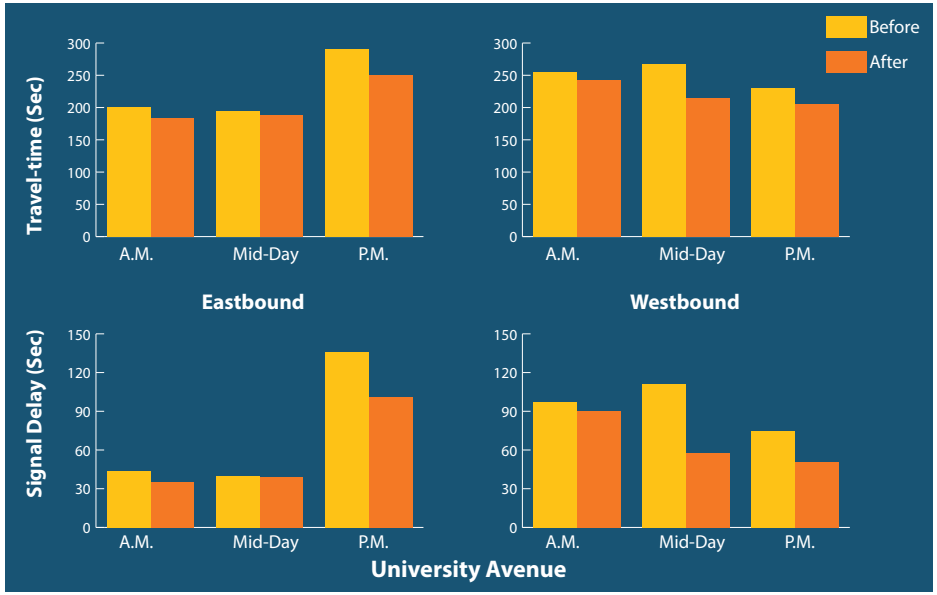
Benefits to Traffic Safety: The yellow and all red clearance times were reviewed using current speed surveys and/or the posted speed limits to ensure sufficient times are implemented for vehicular clearance through an intersection. These timing parameters were implemented at 36 project intersections.

Project Costs	
Consultant Costs (Basic Services/ Plans)	$109,110
Consultant Costs (Additional Plans, TSP, IM Flush Plans, etc.)	$4,000
Other Project Costs (GPS Clocks, Communications equipment, etc.)	$5,000
Agency Staff Costs (Estimate)	$27,278
Total Costs	**$145,388**

Project Benefits

Measures	*First Year*		*Lifetime (5 Years)*	
	Savings	*Monetized Savings*	*Savings*	*Monetized Savings*
Travel Time Savings	68,005 hrs.	$1,327,145	182,428 hrs.	$3,560,142
Fuel Consumption Savings	182,428 gal.	$704,019	489,372 gal.	$1,888,570
ROG Emissions Reduction	0.66 tons	$833	1.78 tons	$2,236
NOx Emissions Reduction	0.45 tons	$8,012	1.19 tons	$21,493
PM2.5 Emissions Reduction	0.02 tons	$7,373	0.06 tons	$19,778
CO Emissions Reduction	5.08 tons	$393	13.62 tons	$1,053
		Total Lifetime Benefits		**$5,493,271**

Overall Project Benefits	Auto
Average Decrease in Travel Time	**11%**
Average Speed Increase	**23%**
Average Fuel Savings	**8%**
Average Reduction in Signal Delay	**27%**
Average Reduction in Number of Stops	**22%**
Overall Benefit-Cost Ratio	**39:1**



Project Benefits Summary

Average Reduction in Auto Signal Delay: 27%

Average Reduction in Number of Stops: 22%

Auto Fuel Consumption Savings: 8% or 489,372 gallons

Total Emissions Reduced (ROG, NOx, PM2.5, CO): 16.66 tons

Auto Travel Time Savings: 11% or 182,428 hours

Overall Project Benefit-cost Ratio = 39:1

For more info, please contact:

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